

ABSTRACT

PT. Bukit Makmur Mandiri Utama is one of PT. Berau Coal's mining contractor that located in Sambakungan Village, Gunung Tabur, Berau, East Borneo province. Mining activities at PT. Bukit Makmur Mandiri Utama - Lati divided in 3 locations namely Pit Quarry West, East Pit, Pit T 07.

Mining is done by open-pit mining system (surface mining) with open pit mine method. Overburden production target of Pit West in 2010 to get coal at 6.702.000 tons is 51.703.000 BCM/year. Drilling and blasting activities that conducted by PT. BUMA is 70% in order to meet overburden target.

Drilling activities is currently using Atlas Copco DML 50 with a 9 inch diameter drill bit (228.6 mm). Staggered Pattern with non-electrical model is used as PT. BUMA's drilling pattern.

Base on the observations that known the average of drilling and blasting production is 84.630.29 BCM/day, with the size of the fragmentation in boulder form with size ≥ 190 cm by 20%. The actual total production has not been able to meet the production targets for drilling and blasting as planned for 100,813.65 BCM/day. Eventually base on the achievement, blasting activities is could not be said to be successful and need to be repaired.

Currently blasting geometry is using burden size 10 m, 12 m spacing, hole depth 8,5 m, 3,5 m Stemming, columns of explosives 4,5 m and 0,5 m subdrilling. Emulsion Trojan 4070 with powder factor average 0.32 Kg/m³ is used as explosives.

To reduce the amount of boulder, improvement on blasting geometry is suggested based on the CJ.Konya's theory. The results obtained the new geometry's design, 9,36 m of burden, 9,19 m of spacing, 6,55 m of stemming, 4,25 m of powder charge, 2,8 m of subdrilling, high levels of 8 m, and the hole depth is 10,8 m with 0,29 Kg/m³ powder factor, and the production of blasting is 105,064.12 BCM/day. The calculation of the theoretical prediction of rock fragmentation for the new design using Kuznetsov's theory obtained material size > 190 cm (boulder) is decrease from 20 % to 7.66%.